

PCT

**NOTIFICATION OF THE RECORDING
OF A CHANGE**

(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

JORRITSMA, Ruurd
Nederlandsch Octrooibureau
Scheveningseweg 82
P.O. Box 29720
NL-2502 LS The Hague
PAYS-BAS

Date of mailing (day/month/year) 09 October 2001 (09.10.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference BO 42447 AS	
International application No. PCT/NL00/00228	International filing date (day/month/year) 06 April 2000 (06.04.00)

1. The following indications appeared on record concerning:

☒ the applicant ☒ the inventor ☐ the agent ☐ the common representative

Name and Address VERWILLIGEN, Anne-Mieke Oude Arnhemseweg 234 NL-3705 BJ Zeist Netherlands	State of Nationality NL	State of Residence NL
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☒ the name ☐ the address ☐ the nationality ☐ the residence

Name and Address VERWILLIGEN, Anne-Mieke, Yvonne, Wilhemmina Oude Arnhemseweg 234 NL-3705 BJ Zeist Netherlands	State of Nationality NL	State of Residence NL
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	Facsimile No.	
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3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned
☐ the International Searching Authority ☒ the elected Offices concerned
☐ the International Preliminary Examining Authority ☐ other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Idhir BRITEL Telephone No.: (41-22) 338.83.38
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PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 27 November 2000 (27.11.00)	
International application No. PCT/NL00/00228	Applicant's or agent's file reference BO 42447 AS
International filing date (day/month/year) 06 April 2000 (06.04.00)	Priority date (day/month/year) 06 April 1999 (06.04.99)
Applicant BESEMER, Arie et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

03 November 2000 (03.11.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Juan Cruz
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

091

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

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TC 3700 MAIL ROOM

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Date of mailing (day/month/year) 25 septembre 2001 (25.09.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference BO 42447 AS	
International application No. PCT/NL00/00228	International filing date (day/month/year) 06 avril 2000 (06.04.00)

1. The following indications appeared on record concerning:

☒ the applicant ☒ the inventor ☐ the agent ☐ the common representative

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State of Residence

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Facsimile No.

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2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☒ the name ☐ the address ☐ the nationality ☐ the residence

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State of Residence

NL

Telephone No.

Facsimile No.

Teleprinter No.

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned
☐ the International Searching Authority ☒ the elected Offices concerned
☐ the International Preliminary Examining Authority ☐ other:

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1211 Geneva 20, Switzerland

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(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 October 2000 (12.10.2000)

PCT

(10) International Publication Number
WO 00/59556 A3

- (51) International Patent Classification⁷: **A61L 15/20**, 15/46
- (74) Agent: **JORRITSMA, Ruurd**; Nederlandsch Octrooi bureau, Scheveningseweg 82, P.O. Box 29720, NL-2502 LS The Hague (NL).
- (21) International Application Number: **PCT/NL00/00228**
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (22) International Filing Date: **6 April 2000 (06.04.2000)**
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- (25) Filing Language: **English**
- (30) Priority Data:
99201087.6 **6 April 1999 (06.04.1999) EP**
- (71) Applicant (*for all designated States except US*): **SCA HYGIENE PRODUCTS ZEIST B.V.** [NL/NL]; P.O. Box 360, NL-3700 AJ Zeist (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **BESEMER, Arie, Cornelis** [NL/NL]; H. v.d. Boschstraat 111, NL-3958 CC Amerongen (NL). **VERWILLIGEN, Anne-Mieke, Yvonne, Wilhemmina** [NL/NL]; Oude Arnhemseweg 234, NL-3705 BJ Zeist (NL). **THORNTON, Jeffrey** [US/NL]; Jagersweg 13, NL-1272 AL Huizen (NL).
- Published:
— with international search report
- (88) Date of publication of the international search report:
20 December 2001
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **HYGIENIC ABSORBENT WITH ODOUR CONTROL**

(57) Abstract: A superabsorbent material with enhanced odour control and control of bacterial growth comprises a non-acidic, alkali-neutralising compound selected from acid anhydrides, lactides, lactones and hydrolysable esters, especially cyclic acid anhydrides, lactides and lactones of γ - or δ -carboxylic acids. The superabsorbent material can be used in hygiene products such as diapers.

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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : A61L 15/00	A2	(11) International Publication Number: WO 00/59556 (43) International Publication Date: 12 October 2000 (12.10.00)
(21) International Application Number: PCT/NL00/00228 (22) International Filing Date: 6 April 2000 (06.04.00) (30) Priority Data: 99201087.6 6 April 1999 (06.04.99) EP (71) Applicant (for all designated States except US): SCA HYGIENE PRODUCTS ZEIST B.V. [NL/NL]; P.O. Box 360, NL-3700 AJ Zeist (NL). (72) Inventors; and (75) Inventors/Applicants (for US only): BESEMER, Arie [NL/NL]; H. v.d. Boschstraat 111, NL-3958 CC Amerongen (NL). VERWILLIGEN, Anne-Mieke [NL/NL]; Oude Arnhemseweg 234, NL-3705 BJ Zeist (NL). THORNTON, Jeffrey [US/NL]; Jagersweg 13, NL-1272 AL Huizen (NL). (74) Agent: JORRITSMA, Ruurd; Nederlandsch Octrooibureau, Scheveningseweg 82, P.O. Box 29720, NL-2502 LS The Hague (NL).		(81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>Without international search report and to be republished upon receipt of that report.</i>
(54) Title: HYGIENIC ABSORBENT WITH ODOUR CONTROL		
(57) Abstract A superabsorbent material with enhanced odour control and control of bacterial growth comprises a non-acidic, alkali-neutralising compound selected from acid anhydrides, lactides, lactones and hydrolysable esters, especially cyclic acid anhydrides, lactides and lactones of γ - or δ -carboxylic acids. The superabsorbent material can be used in hygiene products such as diapers.		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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Hygienic absorbent with odour control

[0001] The present invention relates to a superabsorbent material for use in hygienic absorbent products such as diapers, sanitary napkins and the like, which has enhanced odour control and prevents bacterial growth and to a method of producing such material.

[0002] Superabsorbent materials of various types are known in the art. Examples are crosslinked polyacrylates and polysaccharides grafted with polyacrylates. A problem related to the use of superabsorbent materials is the odour caused by urine components, which cause superabsorbent materials to become objectionable long before there maximum absorbing capacity has been used. As the malodorous compounds are often alkaline materials such as amines, it has been proposed to improve odour control by adding acids to the superabsorbent material. However, the use of acids has disadvantages in that acids will lead to skin irritation.

[0003] US 4,685,909 discloses disposable diapers and the like containing polymeric acidic pH control agents such as cellulose phosphate and polyacrylic acid.

[0004] It has been found that a superabsorbent material with improved odour control can be produced by incorporating in or combining with the superabsorbent material a non-acidic, alkali-neutralising compound selected from acid anhydrides, lactides, lactones and hydrolysable esters.

[0005] Lactides include cyclic esters of hydroxy acids, especially α -hydroxy acids such as glycolic acid and lactic acid (2,5-dioxo-1,4-dioxanes). Lactones include cyclic esters of hydroxy acids, especially γ - or δ -hydroxy acids such as butyrolactone, valerolactone, gluconolactone, glucuronolactone and corresponding lactones of other sugar acids. Examples of hydrolysable esters are cellulose acetate and starch acetate. The non-acidic compound can be chemically bound to the superabsorbent material in the form of esters such as acetylated cellulose. Anhydrides are also suitable, although they are somewhat less preferred than lactides, lactones and hydrolysable esters, possibly because their susceptibility to hydrolysis is too high. They include anhydrides of carboxylic acids, especially cyclic anhydrides of dicarboxylic or polycarboxylic acids such as succinic, glutaric, maleic, citraconic, phthalic acid.

[0006] The amount of neutralising agent (e.g. lactide and lactone) to be incorporated in or to be combined with the superabsorbent material can be 1-20 % by weight, preferably 3-12 % by weight with respect to the weight of the superabsorbing polymer. The amount

of neutralising agent can also be expressed in molar equivalents. In particular the amount is 0.05-1 mmol, in particular 0.15-0.6 mmol per g of superabsorbing polymer.

[0007] An agent facilitating hydrolysis may be added to the neutralising agent. A suitable example is a hydrolysing enzyme, such as a lipase.

- 5 [0008] The superabsorbent materials according to the invention can be used for absorbing fluids, especially body fluids that may produce alkaline odorous components such as urine. The materials may be incorporated in any absorbent article such as sanitary napkins, incontinence pads and baby diapers. As a model for human urine, so-called synthetic urine (SU) is used to study the effectiveness of the superabsorbent materials. The composition of SU is given in table 1 below:
- 10

[0009]

Table 1

component	g/l	mmol/l
magnesium sulphate	0.42	3.5
potassium chloride	4.50	60
sodium chloride	7.60	130
urea	18.00	300
calcium sulphate dihydrate	0.34	2
potassium dihydrogen phosphate	3.54	26
disodium hydrogen phosphate	0.745	5.3
Triton X-100, 0.1%	1.00	
pH 5.9-6.0		

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Example 1: Baby diaper

- [0010] In a baby diaper containing 13 g of polyacrylic acid as absorbent (Libero Maxi Girl), four different alkali-neutralising substances were placed under a non-woven of the diaper and on top of the pulp. 250 ml of SU was added to the diaper. After the addition,
- 20 the pH was measured at six different places on the non-woven using a contact electrode, and the values were averaged. The results are summarised in table 2. It can be seen from the table that despite the high buffering capacity of the diaper (>75% of the polyacrylic

acid being in the sodium salt form), the pH is lowered due to hydrolysis of the acid precursor.

[0011]

Table 2

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neutralising substance	amount (mg)	amount (mmol)	pH after 1 h	pH after 2 h	pH after 5 h
none	-	-	5.75	5.81	5.92
lactide	577	4.0	5.84	5.80	5.47
δ -gluconolactone	1430	8.0	5.96	5.85	5.33
maleic anhydride	600	6.1	5.70	n.d.	5.43

Example 2: Sanitary napkin

[0012] In a sanitary napkin (Libresse) containing CTMP (chemically treated mechanical pulp) as absorbent, three different alkali-neutralising substances were placed in the middle of the CTMP of the napkin. 15 ml of SU was added to the napkin. After the addition of the urine, the pH was measured as six different places on the non-woven using a contact electrode, and the values were averaged. The results are summarised in the following table 3. The table shows that addition of lactide lowers the pH quickly, whereas the same amount of (maleic) anhydride results in a slower but continuing pH decrease. A direct acid (citric acid) tend to be too acidic.

[0013]

Table 3

neutralising substance	amount (mg)	amount (mmol)	pH after 2 h	pH after 5 h
none	-	-	5.76	5.67
lactide	34	0.23	4.51	4.56
maleic anhydride	23	0.23	5.36	4.32
citric acid	49	0.23	3.98	3.80

20

Example 3: Baby diaper

[0014] 250 ml SURM was added to a baby diaper (Libero maxi). Different amounts of glycolide, from 0.2 g to 1.6 g per diaper, were put into diapers, under the non-woven of the diaper and on top of the pulp. Each diaper also contains 1 g of lipolase 100 T (Novo Nordisk). For each measurement the pH of the diaper was measured on the non-woven at six different places with a contact electrode. The averaged results are shown in table 4.

[0015]

Table 4

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Amount of glycolide added		Starting	pH	pH	pH
g	mmol	pH	After 1 hour	After 2 hours	After 5 hours
0.2	1.7	6.0	5.1	5.0	5.0
0.4	3.4	5.9	5.1	4.9	4.9
0.8	6.9	5.9	4.4	4.9	4.8
1.6	13.8	5.9	4.8	4.6	4.6

Claims

1. Superabsorbent material comprising a non-acidic compound selected from acid anhydrides, lactides, lactones and hydrolysable esters.
2. Superabsorbent material according to claim 1, in which the non-acidic compound is selected from lactides and lactones of γ - or δ -carboxylic acids.
3. Superabsorbent material according to claim 2, in which the non-acidic compound is selected from lactide, glycolide and gluconolactone.
4. Superabsorbent material according to any one of the preceding claims, in which said non-acidic compound is present in an amount of 1-20 wt.% with respect to the weight of the superabsorbent material.
5. Superabsorbent material according to any one of the preceding claims, in which the non-acidic compound is homogeneously divided in the superabsorbent material.
6. Superabsorbent material according to any one of the preceding claims, in which the non-acidic compound is chemically bound to the superabsorbent material.
7. Hygiene product such as a diaper, comprising a superabsorbent material according to any one the preceding claims.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 00/00228

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61L15/20 A61L15/46.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 685 909 A (BERG RONALD W ET AL) 11 August 1987 (1987-08-11) page 7, line 37 -page 8, line 18 claims 1,2,4,5 -----	1-7



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search

5 July 2000

Date of mailing of the international search report

13/07/2000

Name and mailing address of the ISA

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Heck, G

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 00/00228

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4685909 A	11-08-1987	AT 81292 T	15-10-1992
		AU 580411 B	12-01-1989
		AU 5741586 A	20-11-1986
		CA 1255887 A	20-06-1989
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		PH 26954 A	03-12-1992
		PT 82571 A,B	01-06-1986
		SG 102991 G	17-01-1992

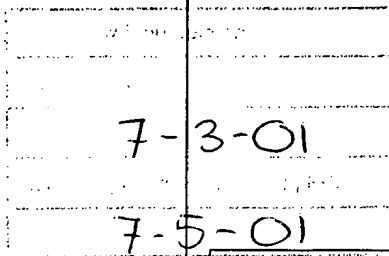
PATENT COOPERATION TREATY

19 FEB 2001

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

JORRITSMA, Ruurd et al.
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Scheveningseweg 82
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PAYS-BAS



PCT

WRITTEN OPINION

(PCT Rule 66)

Date of mailing
(day/month/year) 07.02.2001

Applicant's or agent's file reference
BO 42447 AS

REPLY DUE within 3 month(s)
from the above date of mailing

International application No.
PCT/NL00/00228

International filing date (day/month/year)
06/04/2000

Priority date (day/month/year)
06/04/1999

International Patent Classification (IPC) or both national classification and IPC
A61L15/00

Applicant
SCA HYGIENE PRODUCTS ZEIST B.V. et al.


1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☒ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain document cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application
3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 06/08/2001.

Name and mailing address of the international preliminary examining authority:
 European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer / Examiner

Staber, B

Formalities officer (incl. extension of time limits)
Luck, E
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PATENT COOPERATION TREATY

Preliminary examination report

Report on the international preliminary examination

13-8-01

6-10-01

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

JORRITSMA, Ruurd et al.
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Nederlandsch Octrooibureau

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Paraaf Bewerken

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
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13.07.2001

Applicant's or agent's file reference
BO 42447 AS

IMPORTANT NOTIFICATION

International application No.
PCT/NL00/00228

International filing date (day/month/year)
06/04/2000

Priority date (day/month/year)
06/04/1999

Applicant
SCA HYGIENE PRODUCTS ZEIST B.V. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Almalé Murillo, J-A

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I. Basis of the opinion

1. This opinion has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

Description, pages:

1-4 as originally filed

Claims, No.:

1-7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation (Form PCT/IPEA/405) to restrict or pay additional fees, the applicant has:

- ☐ restricted the claims.
☐ paid additional fees.
☐ paid additional fees under protest.
☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with for the following reasons and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees:
see separate sheet

3. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this opinion:

- ☒ all parts.
☐ the parts relating to claims Nos. .

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement
- | | | |
|-------------------------------|--------|-----------------|
| Novelty (N) | Claims | 1, 4, 7 (no) |
| Inventive step (IS) | Claims | 1, 4, 5, 7 (no) |
| Industrial applicability (IA) | Claims | |

2. Citations and explanations
see separate sheet

Section IV: Non-unity

The subject-matter of independent claim 1 is already known since an absorbent article comprising a hydrolysable ester as the non-acid compound is already described in the art (cf. Section V). The non-acidic compound can therefore no longer act as common concept linking the four different inventions together.

Consequently, the present application contains the following four separate inventions:

- (1) Superabsorbent material comprising **acid anhydrides** as defined in claims 1, 4 to 7 (all part)
- (2) Superabsorbent material comprising **lactides** as set out in claims 1(part), 2, 3, 4 to 7 (part)
- (3) Superabsorbent material comprising **lactones** as set out in claims 1(part), 2, 3, 4 to 7 (part)
- (4) Superabsorbent material comprising **hydrolysable esters** as mentioned in claims 1, 4 to 7 (all part).

All these four separate inventions are taken into consideration by this Written Opinion.

Section V

Novelty and Inventive Step

The prior art is presented by the US document US 4 685 909 (D1).

Said document relates to absorbent articles containing pH control agents in the form of low- and high molecular acidic compounds, including polymeric esters, such as polyacrylate derivatives and polymaleate derivatives (cf. D1, col.8, l. 1 to 3) in an amount of 1 to 30 % (cf. D1,col. 9, l. 6 to 11).

D1 therefore takes away novelty of the fourth invention, particularly of claim 1, 4 and 7 . Claims 1, 4 and 7 do therefore not fulfil the requirements of Art. 33(2) PCT.

The fact that the polymeric ester compound is homogeneously divided in the absorbent

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/NL00/00228

material whereas the ester of D1 is non-uniform distributed (cf. D1, col.9, l. 28 to 30) is considered as an obvious alternative which does not impart an inventive step to the invention.

The subject-matter of claim 6, however, is neither disclosed nor suggested in D1. Hence, claims 1, 4, 5 and 7 are not inventive in the sense of Art. 33(3) PCT.

Absorbent articles comprising non-acid compound in the form of acid anhydrides, lactides and lactones are neither disclosed nor suggested in the prior art document D1. Consequently, the first, second and third invention appears to fulfil the criteria of the PCT.

Section V

1. Novelty

The present invention is directed to a superabsorbent material containing specific **non-acidic** compounds.

The prior art is presented by the US document US 4 685 909 (D1).

Said document relates to absorbent articles containing pH control agents in the form of low molecular weight **organic or inorganic acids** or in the form of high molecular **acidic compounds**; the latter including polymeric esters, such as polyacrylate derivatives and polymaleate derivatives (cf. D1, col.8, l. 1 to 3) in an amount of 1 to 30 % (cf. D1, col. 9, l. 6 to 11). Since the ester compounds used in D1 are acidic and non-hydrolysable, they do not fall within the definition given in the main claim of the application.

In addition, the other non-acidic compounds listed in the main claim are not disclosed in D1.

Hence, the subject-matter of claims 1 to 7 is considered to be novel over D1 (Art. 33(2) PCT).

2. Inventive Step

Document D1 teaches to add **acidic compounds** to absorbent articles in order to provide products which are highly effective for absorbing body fluids and which at the same time serves to prevent or reduce diaper rush.

The use of **non-acidic compounds** in absorbent articles in order to enhance odour control and to prevent bacterial growth cannot be deduced from D1, so that the subject-matter of the present invention involves an inventive merit in the light of D1.

Claims 1 to 7 therefore fulfill the requirements of Art. 33(3) PCT.

REC'D 17 JUL 2001

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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference BO 42447 AS	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NL00/00228	International filing date (day/month/year) 06/04/2000	Priority date (day/month/year) 06/04/1999
International Patent Classification (IPC) or national classification and IPC A61L15/00		
Applicant SCA HYGIENE PRODUCTS ZEIST B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 4 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 03/11/2000	Date of completion of this report 13.07.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Staber, B Telephone No. +49 89 2399 8587 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL00/00228

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-4 as originally filed

Claims, No.:

1-7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL00/00228

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-7
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-7
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-7
	No:	Claims	

2. Citations and explanations
see separate sheet